THE CLAIMS

What is claimed is:

1. A process for the extraction of glycomacropeptide or caseinoglycomacropeptide ("GMP") from a lactic raw material comprising the steps of:

removing cations from a lactic raw material for a sufficient amount of time to obtain a substantially deionized lactic raw material having a pH of about 1 to 4.5;

contacting the substantially deionized lactic raw material with an anionic resin having a hydrophobic matrix for a sufficient amount of time and at a sufficient temperature to remove GMP from the substantially deionized lactic raw material and to obtain a treated liquid material;

separating the resin from the treated liquid material; and

rinsing the resin to obtain the GMP therefrom.

2. The process according to claim 1 wherein the lactic raw material is one of sweet whey obtained after separation of casein coagulated with rennet, a concentrate of sweet whey, a sweet whey or such a whey demineralized to by electrodialysis, ion exchange, reverse osmosis, electrodeionization or a combination of these procedures, a concentrate of sweet whey demineralized by electrodialysis, ion exchange, reverse osmosis, electrodeionization or a combination of these procedures, a concentrate of proteins of substantially lactose-free sweet whey obtained by ultrafiltration, followed by diafiltration (ultrafiltration with washing), mother liquors of the crystallization of lactose from sweet whey, a permeate of ultrafiltration of a sweet whey, the product of hydrolysis, by a protease, of a native casein obtained by acid precipitation of skimmed milk with an inorganic acid or by biological acidification, where appropriate with addition of calcium ions or alternatively of a micellar casein, obtained by microfiltration of a skimmed milk, the product of hydrolysis of a caseinate by a protease.

3. The process according to claim 1 wherein the sweet whey has a solids content of about 10 to 23 percent by weight and is completely deionized during the cation removal step.

4. The process according to claim 1 wherein the lactic raw material is a liquid or a dispersion of solids in a liquid and which further comprises adding calcium ions to the lactic raw material after the cation removal step.

5. The process according to claim 1 which further comprises treating the resin with an alkaline material prior to contacting the substantially deionized lactic raw material with the resin.

6. The process according to claim 5 wherein the substantially deionized lactic raw material contacts the resin in a gently stirred reactor at a temperature of less than 50°C for one to ten hours to adsorb the GMP onto the resin.

7. The process according to claim 6 wherein the reactor is at a temperature between 0°C and 15°C and the resin is basic and in macroporous or macrocross-linked gel form.

8. The process according to claim 1 wherein the substantially deionized lactic raw material contacts the resin until the treated liquid material attains a constant pH of between about 4.5 to 5.5.

9. The process according to claim 1 which further comprises concentrating the treated liquid material by evaporation and drying.

10. The process according to claim 9 wherein the treated liquid material is dried by spray drying and which further comprises separating the resin from the treated material by filtration or centrifugation prior to evaporation and drying.

11. The process according to claim 1 further comprising, the resin and lactic raw material are present in a volume ratio of between about 1:1 to about 1:30.

12. The process according to claim 1 which further comprises the steps of:

separating the GMP from the resin by washing the resin with demineralized water to obtain an eluate;

desorbing the GMP from the resin by washing the resin with an acidic, basic or saline aqueous solution rinse;

washing the resin with demineralized water;

combining the eluate and the washings;

demineralizing the combined eluate and washings by ultrafiltration or nanofiltration on a membrane with a mean cut-off region of about 3000 daltons to obtain a retentate and filtrate; and

recovering the GMP as the retentate.

13. The process according to claim 12 wherein, the basic aqueous solution comprises NaOH, KOH or $Ca(OH)_2$, in a concentration of less than 8% wherein the retentate is freeze-dried to recover the GMP.

14. A treated liquid material obtained from the process of claim 1 and having an amino acid profile is reduced in threonine and enriched in aromatic amino acids and tryptophan.

15. The treated liquid material of claim 14 wherein, relative to the lactic raw material, the threonine content reduced by about 15 to 40%, and the aromatic amino acids and tryptophan are increased to about 20 to 60%.

16. An infant or dietetic product containing the treated liquid material of claim 14 as protein raw material.

17. An infant or dietetic product containing the product of the process of claim 9 as protein raw material.

18. An infant or dietetic product containing the product of the process of claim 10 as protein raw material.

19. A glycomacropeptide or caseinoglycomacropeptide ("GMP") obtained from the process of claim 1.

20. A pharmaceutical composition containing the glycomacropeptide or caseinoglycomacropeptide ("GMP") of claim 19 as antithrombotic, antidiarrheal or antibacterial agents.

21. A food composition containing the the glycomacropeptide or caseinoglycomacropeptide ("GMP") of claim 19 as an emulsifying, gelling or foaming agent.

22. A dental composition containing the GMP of claim 19 as an agent against plaque and caries.

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